

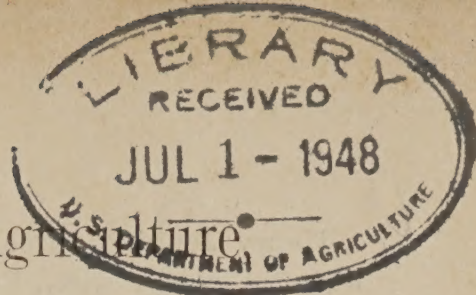
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# United States Department of Agriculture

## BUREAU OF SOILS.

Reserve

### AUTHORIZATIONS.

The following assignments of field parties are made under general letters of authorization (No. 40, July 1, 1906, and No. 949, November 20, 1906) issued to the Chief of the Bureau of Soils by the Secretary of Agriculture, and constitute a proper authorization to perform the travel and incur the expenses necessary to carry out such assignments:

On or about December 5, E. R. Allen will proceed from Washington, D. C., to Marion County, Ala., to assist Mr. Ayrs in the survey of that county.

On or about December 10, H. L. Belden will proceed from Winn Parish, La., to Jefferson County, Fla., to assist G. B. Jones in the survey of that county.

Upon the completion of the survey of Chesterfield County, Va., W. J. Geib and C. W. Mann will proceed to Prentiss County, Miss., to make a survey of that county. Mr. Geib will be in charge of this party.

Upon the completion of the survey of the Laredo area, Texas, A. W. Mangum and Ora Lee, jr., will proceed to Brownsville, Tex., to make a reconnoissance in the vicinity of that place and report upon the character and extent of the survey to be made in that locality. Mr. Mangum will be in charge of this party.

Pending the commencement of field work in Sumter and Lee counties, S. C., and upon the completion of the survey of Meigs County, Ohio, G. W. Tailby, jr., will proceed to Washington, D. C., for special assignment at headquarters. Upon the completion of the Chesterfield area, Virginia, he will join Mr. Bennett in Sumter County, S. C., as previously assigned.

On or about January 1, W. E. Tharp will proceed from Putnam County, Mo., to headquarters in Washington, D. C., for assignment to special service during the winter months.

Since the issuance of the last assignment sheet special letters of authorization have been issued covering the following assignments:

J. A. Bonsteel proceeded from Washington, D. C., about October 1, to Bedford County, Pa., for the purpose of investigating soil conditions in that locality with a view to ascertaining the advisability of making a soil survey of that county, and also for the purpose of addressing a gathering of farmers on the subject of the nature and use of soil-survey reports.

G. N. Coffey proceeded from Washington, D. C., about October 19, to Transylvania County, N. C., Knoxville, Tenn., Grainger County, Tenn., Meigs County, Ohio, and other points, for the purpose of inspecting the work being done in those areas.

W. J. Geib proceeded from Niagara County, N. Y., upon the completion of the survey of that county, to Chesterfield County, Va., to assist in the completion of the survey of that county.

W. E. Hearn proceeded from Robeson County, N. C., about December 1, to Washington, D. C., for assignment to special duty at headquarters during the winter months. He was authorized to stop at Raleigh, N. C., to confer with the State officials regarding the soil-survey work of that State.

W. M. Hinson proceeded from Palestine, Tex., about October 8, to Washington, D. C., via Quincy, Fla., for the purpose of conferring with the Chief of Bureau in regard to the state of the tobacco work in Texas and Florida. Upon the termination of this conference he returned to Palestine, Tex.

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Henry Jennings proceeded from Washington, D. C., about October 20, to Jasper County, Miss., to assist Mr. Worthen in the survey of that county.

W. W. Mackie proceeded from Fresno, Cal., about October 10, to Washington, D. C., for assignment to special work at headquarters during the winter.

C. W. Mann proceeded from Niagara County, N. Y., upon the completion of the survey of that county, to Chesterfield County, Va., to assist in the completion of the survey of that county.

G. T. McNess proceeded from Washington, D. C., about November 7, to Palestine, Tex., and other points in that State where the Bureau is conducting tobacco investigations, for the purpose of inspecting the work, and also to attend a meeting of the Leaf Tobacco Growers' Association to be held at Houston on November 13. He was directed to return to headquarters by way of Marion, Ala., remaining there a sufficient time to arrange for the continuation of the tobacco work at that place.

J. B. Stewart proceeded from Tariffville, Conn., about October 29, to Washington, D. C., to report to the Chief of Bureau for further service.

J. F. Warner proceeded from Tempe, Ariz., to Washington, D. C., for assignment to special work at headquarters during the winter.

The necessary traveling and other expenses incurred in consequence of these assignments will be reimbursed in accordance with the fiscal regulations of the Department, upon the presentation of expense accounts properly executed and supported by subvouchers. All travel performed under these assignments must be via the most direct and quickest routes available and at the lowest limited-fare rates.

#### SOIL SURVEY.

JAY A. BONSTEEL, *In Charge.*

In charge of soil classification and correlation, GEORGE N. COFFEY.

In charge of areal surveys, JESSE E. LAPHAM.

In charge of survey of alkali lands, MACY H. LAPHAM, Willows, Cal.

In charge of soil platting of experimental farms, WILLIAM G. SMITH, Auburn, Ala.

In charge of maps and records, GEORGE W. BAUMANN.

#### Projects.

##### SUMMER SEASON.

State.	Area.	Square miles.	Per cent completed Nov. 24.	Party.
Arkansas-----	Fayetteville area <sup>1</sup> -----	560	100	Wilder-Shaw.
Do-----	Prairie County <sup>2</sup> -----	658	100	Carter.
California-----	Willows area <sup>1</sup> -----	375	100	Lapham, M. H.-Sweet-Strahorn.
Kansas-----	Riley County <sup>2</sup> -----	604	100	Carter-Smith, H. C.
Minnesota-----	Blue Earth County <sup>2</sup> -----	777	100	Bennett, H. H.-Hurst.
Do-----	Crookston area <sup>2</sup> -----	778	100	Mangum-Schroeder.
Missouri-----	Putnam County <sup>2</sup> -----	530	90	Mann, C. J.-Tharp.
Nebraska-----	Lancaster County <sup>2</sup> -----	868	100	Burgess-Worthen.
New Hampshire-----	Merrimac County <sup>2</sup> -----	921	100	Mooney-Westover.
New York-----	Madison County <sup>1</sup> -----	649	100	Carr-Lee.
Do-----	Niagara County <sup>1</sup> -----	522	100	Jones-Ayrs.
North Carolina-----	Transylvania County <sup>1</sup> -----	370	100	Hearn.
North Dakota-----	Ransom County <sup>2</sup> -----	864	100	Ely.
Do-----	Williston area <sup>2</sup> -----	610	100	Rice.
Ohio-----	Meigs County <sup>2</sup> -----	435	96	Meeker-Tailby.
Tennessee-----	Grainger County <sup>1</sup> -----	309	100	McLendon-Lyman.
Virginia-----	Chesterfield County-----	459	52	Bennett, F.-Winston-Geib-Mann, C. W.

<sup>1</sup> Topographic sheet.      <sup>2</sup> Plane table to be used if reliable map can not be obtained.

NOTE.—The Prairie County survey, which was not completed last spring because of the flooded condition of the bottoms, has been completed by Mr. Carter.



## WINTER SEASON.

State.	Area.	Square miles.	Per cent completed Nov. 24.	Party.
Alabama-----	Butler County <sup>1</sup> -----	769	19	Kocher-Westover.
Do-----	Marion County <sup>1</sup> -----	744	-----	Ayrs-Allen.
Do-----	Talladega County <sup>2</sup> -----	677	-----	Mooney-Mann, C. J.
Arkansas-----	Conway County <sup>1</sup> -----	489	19	Ely-Burgess.
California-----	{ Colusa area <sup>2</sup> ----- } { Redbluff area <sup>2</sup> ----- }	500	-----	{ Lapham, M. H.-Sweet. Strahorn-Holmes.
Florida-----	Jefferson County <sup>1</sup> -----	593	-----	Jones-Belden.
Louisiana-----	Winn Parish <sup>1</sup> -----	957	10	Caine-Lee, L. L.
Mississippi-----	Jasper County <sup>1</sup> -----	647	19	Worthen-Jennings.
Do-----	Oktibbeha County <sup>1</sup> -----	435	9	McLendon-Hurst.
Do-----	Prentiss County <sup>1</sup> -----	420	-----	Geib-Mann, C. W.
North Carolina--	Robeson County <sup>1</sup> -----	1,043	5	Hearn.
South Carolina--	Lee and Sumter counties <sup>1</sup> -----	860	-----	Bennett, F.-Tailby.
Texas-----	Bastrop County <sup>1</sup> -----	881	-----	Meeker-Winston.
Do-----	Delta and Lamar counties <sup>1</sup> -----	619	18	Rice-Smith, H. C.
Do-----	Laredo area <sup>1</sup> -----	150	47	Mangum-Lee, Ora, jr.
Do-----	Robertson County <sup>1</sup> -----	913	11	Bennett, H. H.-Shaw.
Do-----	Wilson County <sup>1</sup> -----	784	23	Lyman-Schroeder.

<sup>1</sup> Plane table to be used if reliable map can not be obtained.<sup>2</sup> Topographic sheet.

## Problems.

There can at present be no definite assignment of men to the many problems encountered in the survey work. In the course of the work upon each survey project, however, the field men are to secure all possible information, in a broad sense, concerning the following problems as they are encountered in the several areas to which they are assigned:

What determines the adaptability of soils to the different commercial types of tobacco; to truck crops?

What essential characteristics do good corn soils possess?

What are the essentials of a good cotton soil?

What constitutes a good wheat soil?

Under what soil conditions can the different varieties of fruits be produced to advantage?

A large amount of information along these several lines has been gathered by the Bureau and published in the soil-survey reports. It is desired to bring more and more of this information together, so that eventually complete reports can be presented on these several problems covering characteristics of the soils particularly adapted to the production of various crops.

## Cooperation in the Preparation of Base Maps.

A cooperative agreement has been entered into between the Bureau of Soils, U. S. Department of Agriculture, and the Topographic Division of the U. S. Geological Survey, Department of the Interior, whereby the base maps used by the soil-survey field parties may be made available to the Geological Survey for use in preparing subsequent topographic sheets and whereby the services of traverse men from the Geological Survey may be made available to the soil survey.

In all cases possible the Geological Survey will furnish complete topographic base maps for use in making soil surveys. Where these do not exist or can not be prepared in time for the use of the soil survey, the Geological Survey will in some cases prepare traverse maps showing roads, streams, houses, towns, railroads, and other essential features of a base map. These sheets will be assembled in the form of county maps, without topography, and made available for the use of the soil-survey parties. In other cases, where partial maps or maps of doubtful value exist and traverse work is necessary, experienced traverse



men, trained in the methods of the Geological Survey, will be secured by the soil survey to serve as traverse assistants in soil-survey work. In other cases experienced men from the Geological Survey will visit the various soil-survey parties, look into the methods employed in plane-table work, and make suggestions whereby these methods may be made to conform to the standards used by the Geological Survey in its own traverse work. In this way the base maps as prepared will be available immediately for the use of the soil survey, and the data secured will also be available for use, at a later date, in the preparation of topographic sheets by the Geological Survey.

During the present winter season the soil-survey parties who are located in the Southern States will be visited by inspectors or other trained men from the Geological Survey, who will remain for several days with the soil-survey party, instructing one or more of its members in regard to the changes in methods necessary to carry out this cooperative agreement and make the results of the soil-survey traverse work available for use by the Geological Survey. In all cases the soil-survey men will be expected to learn as much as possible of these methods within the short time that can be devoted to this work, and they will be expected to conform to these methods in the preparation of the base maps of the areas now in progress.

Detailed instructions for the preparation of traverse base maps agreed to by the Bureau of Soils and the Geological Survey:

1. The units of the soil survey are the counties, and the extent of these is such that several traverse sheets will be required to represent the area of each county, each traverse sheet to contain as much of the area as possible; to be lettered, giving name of chief of party, name of traverse man, scale, and year; for purposes of adjustment show connection of each sheet to contiguous sheet, i. e., A. B. C., end of traverse on sheet No. 1, represents A. B. C., beginning of traverse on sheet No. 2.
2. The chief of party is the soil surveyor, and the traverse man working as his helper is an employee of the soil survey of the Bureau of Soils of the Department of Agriculture.
3. The technical execution of the work of the traverse man is under the direction and inspection of the topographic branch of the Geological Survey, which assumes responsibility for the quality of the traverse work. Weekly reports of traverse work shall be made by the traverse man to the appropriate section chief of that Bureau.
4. The method of traversing is that practised in the Geological Survey, as set forth in its instructions to traverse men, and the symbols used in depicting features of the traverse shall be those employed by it so far as applicable.
5. The scale of the traverse shall be 2 inches to 1 mile, each inch on the graduated scale being subdivided into 40 divisions, or a total of 80 divisions to the mile on the ground.
6. The odometer now used shows one full revolution of the hand to the mile, one division of the odometer face corresponding to two of the eightieth divisions on the 2-inch scale. This for a buggy wheel 12 feet in circumference. Wheels of any other circumference must be carefully measured with tape and the table of revolutions per mile given in the field book used.
7. The traverse should consist of much more than the platting of direction and distance. These two facts should first be recorded graphically. Thereafter, crossings of streams with their directions, as indicated by an arrowhead; position of residences, schools and churches, warehouses, and other important buildings should be shown, but not barns and other detached buildings about a dwelling.
8. It is unnecessary to secure intersection location of trees, hilltops, etc., as is done by the Geological Survey, except where specific instructions are given.
9. The separate houses in a city or village need not be mapped, only an outline road map of the city being necessary, except where specific instructions are given.
10. Connections with the land-line corners, section lines, etc., should be secured wherever possible and indicated on the map, as should crossings and directions of railroads, trolley lines, etc. At least one township or section corner in every 3 miles is desirable.



11. The traverse man must keep up with the soil surveyor. He may therefore be compelled to omit traverse of some roads. He should use discretion in securing traverses of all important roads, omitting only those which are of secondary importance.

12. All road junctions, whether traversed or not, should be shown with the angle of offtake of the road from that being traversed.

13. The failure of a circuit of traverse to close on the initial point or upon itself must be clearly indicated by two circles at the corresponding junction points, with an arrow pointing from one to the other. These closure errors are of primary importance and should not be made to connect. Make circuits as large as possible.

14. Names of villages, streams, railroads, churches, and isolated sections and hills, etc., should be legibly written upon the map. Location of villages should be definitely shown.

15. Surveys by traverse of intersection of ponds and of streams should be so made that the resulting map will show the connection and continuity of stream and pond outlines.

16. Crossings and directions of all political boundaries, as of townships, counties, etc., should be graphically shown with names.

17. The soil surveyor will plot on the traverse, as he progresses, the data required of him.

18. The resulting map will be sent to the office of the Bureau of Soils in Washington for transmission to and adjustment by the Geological Survey, which will at once make a clear drawing of the adjusted county map.

A plate of conventions which will be used upon all traverse work is being prepared, and as soon as possible copies of these conventional symbols will be sent in small-sized pads to each field party. The person or persons having charge of the traverse work will be expected to conform exactly to these symbols, and in the case of completed maps a sheet of the symbols should be detached from the pad and attached to the completed map when this is sent to the Bureau of Soils.

Particular attention is called to the fact that in all future traverse work the error of closure, which occurs in all traverse circuits, is not to be corrected in the field by throwing the error into the last one or two courses, but the error is to be shown upon the map in case it is small, or is to be found and corrected in case it is large. The conventional symbol showing this closure error should be placed upon all maps wherever a circuit is completed. A special sheet containing the instructions to traverse men, issued by the Geological Survey, will be mailed to each soil-survey party, and upon this will be represented diagrammatically a portion of a traverse illustrating these points.

During the present season it will be necessary for the soil-survey assistants in the field to learn these improved methods as rapidly as possible and to make use of them to the fullest extent in the preparation of base maps. It is hoped that at a later date arrangements can be made whereby the soil-survey assistants will be relieved of the work of making traverse maps of any kind, and this work carried on by assistants secured from the Geological Survey. In the meantime especial care is enjoined upon the soil-survey field men to see that their maps conform as nearly as possible to the standards set forth in the instructions issued herewith.

As soon as possible employees of the Geological Survey will execute the primary control necessary for fixing the location of the traverse maps made, and in this way it is hoped that the work of both organizations may become so closely related that the maps of each may be used by the other with but slight modifications.

#### Correlation.

From Butler County, Ala., A. E. Kocher reports Orangeburg sand, Orangeburg fine sand, Orangeburg sandy loam, Orangeburg fine sandy loam, Orange-



burg clay, Norfolk sand, Norfolk fine sand, Norfolk fine sandy loam, Susquehanna fine sandy loam, Susquehanna clay, and Houston clay.

From Conway County, Ark., C. W. Ely reports Conway silt loam, Conway gravelly loam, Morrilton silt loam, Arkansas fine sand, Arkansas fine sandy loam, Arkansas silt loam, Arkansas clay, and Rough stony land. The Conway silt loam is derived from shale and can probably be correlated with the Dekalb silt loam. The Conway gravelly loam covers the very rolling areas and is associated with the Conway silt loam. The soil varies considerably in texture and contains numerous fragments of shale and sandstone. Its exact correlation has not been decided upon. The Morrilton silt loam consists of a gray silt loam underlain by yellow, drab, or gray silt loam or silty clay, which in turn is sometimes underlain by red clay at less than 3 feet. The surface is rather flat and the soil poorly drained. Occasionally mounds of fine sandy loam occur. This type may be related to the Caddo fine sandy loam, but its exact place in the classification has not been determined. The Arkansas fine sand is a gray fine sand with a small percentage of organic matter and is underlain at 8 inches by yellow or gray fine sand. The Arkansas fine sandy loam is a gray fine sandy loam containing considerably more organic matter than the Arkansas fine sand and is underlain at 8 to 18 inches by yellow or gray fine sandy loam. It is considered a good soil and is well drained. The Arkansas silt loam consists of a brown or light-brown silt loam 6 to 16 inches deep, underlain by a drab silt loam or silty clay. The Arkansas clay is a brown silty clay or clay loam 6 to 10 inches deep, underlain by a drab or reddish clay or silty clay. It is noticeably heavier than the silt loam and somewhat difficult to cultivate. All of the Arkansas soils are alluvial in origin, having been formed by deposition from the Arkansas River. Their exact place in the classification has not been determined.

From the Willows area, California, M. H. Lapham reports Glenn clay loam, Glenn clay loam adobe, Willows silt loam, Willows clay loam, and Willows clay loam adobe. The Glenn clay loam consists of 4 feet of light-gray, sticky, compact clay loam, underlain by light-gray volcanic ash or ashy sandstone. It is a residual soil occurring as small patches on the lower rolling foothills. The Glenn clay loam adobe consists of a dark-brown, heavy clay loam adobe, often gravelly, 3 feet deep, underlain by heavy, compact red clay adobe or hardpan. It is derived from an admixture of colluvial and alluvial materials and occurs upon the rolling hills and slopes of the lower foothills. The Willows silt loam consists of from 6 to 15 inches of light-gray, compact silt loam, underlain to a depth of 6 feet or more by a compact, brown or reddish-brown heavy clay loam of adobe structure. The Willows clay loam consists of from 4 to 6 feet or more of heavy, compact light to dark-brown clay loam, underlain by a compact, yellowish or light-gray heavy clay. The Willows clay loam adobe consists of from 4 to 6 feet or more of brown clay loam adobe, sometimes containing gravel. It is underlain by a compact, heavy, yellowish or drab clay. All the Willows soils are of alluvial origin, having been formed by wash from the lower foothills and adjacent or higher-lying soil types. The exact correlation of these types has not been decided upon.

From Winn Parish, La., T. A. Caine reports Susquehanna fine sandy loam, Norfolk fine sandy loam, Orangeburg fine sandy loam, and Caddo fine sandy loam.

From Oktibbeha County, Miss., W. E. McLendon reports Norfolk sandy loam, Norfolk fine sandy loam, Orangeburg clay, Wabash clay, Houston clay, Selma chalk, and Oktibbeha fine sandy loam. The Selma chalk consists of a light-gray soft chalky material from 4 to 6 inches deep, which contains only a small quantity of humus and is underlain by a white or yellowish-white soft chalk. It represents the badly eroded areas of the Selma chalk formation, from which



the Houston clay is derived. The Oktibbeha fine sandy loam consists of from 6 to 8 inches of yellowish-brown fine sandy loam, underlain by a heavy fine sandy loam of a yellowish to reddish-brown color. The soil is derived from Pleistocene deposits. The correlation of this type has not been determined.

From Jasper County, Miss., E. L. Worthen reports Norfolk sand, Norfolk fine sandy loam, Orangeburg sand, Orangeburg sandy loam, Orangeburg fine sandy loam, and Orangeburg clay.

From Robeson County, N. C., W. E. Hearn reports Norfolk sand, Norfolk sandy loam, Portsmouth sandy loam, and Swamp.

From Meigs County, Ohio, F. N. Meeker reports Dunkirk gravelly loam, Dunkirk sand, Dunkirk fine sandy loam, and Dunkirk loam.

From Delta and Lamar counties, Tex., T. D. Rice reports the Houston black clay.

From Robertson County, Tex., H. H. Bennett reports the occurrence of soils belonging to the Orangeburg, the Norfolk, the Susquehanna, the Lufkin, and possibly the Houston series. The work in this county has not progressed far enough to establish definitely the several types.

The attention of the field men is again called to the necessity of sending in a description of the soil types upon Form 46 as soon as a type has been established.

#### Notes.

In case the man assigned as assistant on any of the surveys should arrive in the new area prior to the arrival of the man assigned in charge, which will sometimes happen when reassignments of soil-survey parties are made, the assistant will begin field work at once and will assume all duties and responsibilities connected with the survey until such time as the man in charge arrives.

L. L. Lee has been appointed a special expert assistant in the soil survey for service in Winn Parish, La., in the preparation of the soil-survey map of that area. His services will terminate with the completion of the field work in Winn Parish.

E. R. Allen has been appointed from the Civil Service list as a field assistant in the soil survey, to date from December 1, 1906.

Henry Jennings has been appointed from the Civil Service list as a field assistant in the soil survey, to date from October 1, 1906, and assigned to assist E. L. Worthen in the soil survey of Jasper County, Miss.

M. E. Carr and H. J. Wilder have reported in Washington for special services during the winter months.

L. C. Holmes has reported in the Sacramento Valley, California, for service with the Lapham party in that area.

The resignation of E. O. Fippin, after five years' service with the soil survey, was accepted to take effect October 1, 1906. Mr. Fippin resigned to accept a position as Assistant Professor of Agronomy, in charge of soil investigations at Cornell University.

#### PHYSICAL AND CHEMICAL INVESTIGATIONS.

FRANK K. CAMERON, *In Charge.*

#### INVESTIGATORS.

G. H. Failyer.  
J. M. Bell.  
H. E. Patten.  
J. G. Smith.

W. C. Taber.  
F. E. Gallagher.  
W. H. Waggaman.  
C. C. Fletcher.

M. L. Turner.  
W. O. Robinson.



### Problems.

In the laboratories which are maintained to study the many problems encountered by the field forces it is not possible to organize along the line of projects, nor advisable to assign men permanently to long-continued lines of work, but to assign them temporarily to any one of the many problems when new facts are presented by the field work which make it appear probable that some further advance may be made in any of the large problems which the Bureau, as a whole, is considering. The following are the principal problems being investigated at present by the laboratories, and any suggestions along these lines that may occur to the field men, as a result of the work in the areas they are assigned to, should be submitted:

#### Soil Composition:

- Investigations of the mineral constituents of soils.
- Investigations of the organic constituents of soils.
- Composition of soil solutions.
- Absorption and retention of fertilizers.
- Effect of fertilizers on soils.

#### Soil Constitution:

- Investigations of the texture and structure of soils.
- The formation and removal of hardpan in soils.

#### Soil Tillage:

- Tillage requirements for the maintenance of fertility of soils.
- Renovation of worn-out and abandoned soils.

#### Soil Climatology:

- The retention and movement of soil moisture.
- Drought limits of soils.
- Soil temperatures.
- Soil atmosphere and ventilation.

### MANURIAL REQUIREMENTS OF SOILS.

FRANK D. GARDNER, *In Charge.*

#### Projects.

##### Manurial Requirements of Soil Types:

Washington, D. C.—F. D. Stevens in charge, assisted by A. M. Sanchez, L. A. Kolbe, J. E. McClintock, and James H. Beattie.

##### Soil Management Experiments at Arlington Farm:

Henry Winckelmann.

##### Compiling Results of Field Fertilizer Tests in the United States:

G. B. Maynadier.

##### Field Investigations:

J. C. Britton, J. W. Nelson, and F. R. Reid, all of whom are in Washington, D. C., preparing reports on the areas investigated during the summer.

#### Notes.

Because of ill health, O. L. Eckman has been granted three months' furlough, beginning November 1. As soon as he is able, Mr. Eckman will report at Washington, D. C., for assignment to field service with the soil survey.



On November 1, H. J. C. Umberger was transferred to the Bureau of Plant Industry, and on the same date James H. Beattie was transferred from the Bureau of Entomology to the Bureau of Soils.

### FERTILITY INVESTIGATIONS.

OSWALD SCHREINER, *In Charge.*

#### Projects.

Soil physiology, including such conditions in the soil as result from plant and bacterial life: H. S. Reed.

Investigations of the presence and nature of toxic substances in infertile soils: Charles A. Jensen.

Investigations of manures and fertilizers in overcoming toxic constituents in infertile soils: J. F. Breazeale.

Investigations upon the rôle of manures and fertilizers in soils, particularly whether they act upon the soil or upon the plant: J. J. Skinner.

Investigations upon the rôle of manures and fertilizers in soils, particularly with reference to the amounts, ratios, time of action, and residual effects: Bailey E. Brown and C. L. Cook.

Development of methods for carrying on fertility investigations: A. M. Jackson.

#### Notes.

F. R. Pember, who until lately has been detailed to carry on cooperative work with the Rhode Island Experiment Station, has resigned to accept a position with the station to continue the same work.

### ALKALI LAND RECLAMATION.

CLARENCE W. DORSEY, *In Charge.*

#### Notes.

Work on the alkali reclamation tracts at Fresno, Cal., and Tempe, Ariz., has been completed, and the tracts have been turned over to the owners in a reclaimed condition.

W. W. Mackie is at headquarters in Washington, D. C., preparing a bulletin giving the results of the Bureau's alkali investigations in the Fresno district.

J. F. Warner is at present on the way to headquarters in Washington, D. C., for special assignment during the winter months.

A. T. Strahorn and L. C. Holmes are temporarily assigned to the soil survey and are assisting Mr. Lapham in the survey of the Sacramento Valley, California.

Rudolph Boss resigned from the service on September 30, 1906.

### TOBACCO INVESTIGATIONS.

GEORGE T. MCNESS, *In Charge.*

#### Projects.

Alabama: Production of Cuban type of tobacco—L. W. Ayer, R. S. Epley, and W. B. Schrader, Marion.

Connecticut: Production of shade wrapper tobacco—J. B. Stewart, Tariffville.

Ohio: Production of Cuban type of tobacco; Bulk method of fermenting Ohio leaf—G. B. Massey, Germantown.

Texas: Production of Cuban type of filler tobacco; Production of Sumatra type of wrapper tobacco—W. M. Hinson and Harry Rich, Palestine; Otto Olson, Nacogdoches.



Virginia: Production of export tobacco—E. H. Mathewson, Appomattox.  
Production of bright tobacco—W. W. Green, Chatham.

New York: Improvement of Onondaga tobacco, and introduction of bulk method of fermentation—Geo. W. Harris, Baldwinsville.

#### Notes.

Henry Weinberg resigned on December 1, to take charge of the local business of a large tobacco firm operating in Texas.

Mr. McNess has returned from a visit to the tobacco stations in Texas and Alabama, where he inspected the work being done by the Bureau and made arrangements for future investigations. He also attended the meetings of the Texas Leaf Tobacco Growers' Association at Houston.

The experimental crop of shade tobacco grown by the Bureau in Connecticut during the past season has been shipped to Washington, D. C., where it is being fermented and packed under the supervision of J. B. Stewart, who has charge of the Connecticut work.

#### ADMINISTRATION.

*Chief Clerk*, A. G. RICE.

*Accounts*, C. A. WOLFE.

*Supplies*, J. W. MCKERICHER.

Attention is called to General Order No. 104, issued by the Secretary of Agriculture November 15, 1906, as follows:

The Comptroller of the Treasury has ruled that fees for administering an oath by any clerk of any circuit or district court of the United States, as to the correctness of expense accounts of employees of the Department, must be paid out of the Treasury to the clerk and must be included in his accounts and approved, rendered, and paid in the same manner as are any other fees due him for services rendered the United States (13 Comp. Dec., 71). Hereafter charges of this nature shall not be included in expense accounts of employees of this Department. Therefore, employees who have this service performed by clerks of circuit or district courts should make no payment therefor.

MILTON WHITNEY,  
*Chief of Bureau.*

WASHINGTON, D. C., *December 4, 1906.*







